GUIDELINES FOR REDUCING BIRD AND BAT IMPACTS FROM WIND DEVELOPMENT IN CALIFORNIA

STAFF WORKSHOP #1 SUMMARY
JULY 28, 2006

I. Introductions, Workshop Objectives and Agenda Review

Rick York of the California Energy Commission (CEC) Biology Unit, began by welcoming all participants to the first public staff workshop coordinated by CEC, with help from California Department of Fish and Game (CDFG), regarding the development of guidelines to reduce potential impacts of wind energy development to birds and bats. Mr. York provided a brief overview of housekeeping items and noted that the printed handouts for this workshop have been posted on the CEC website (http://www.energy.ca.gov/renewables/06-OII-1). He then introduced the workshop facilitator, Paul De Morgan of RESOLVE.

Mr. De Morgan provided a brief overview of RESOLVE's services and initiated a round of introductions (see complete list of attendees at the end of the summary).

Mr. De Morgan went through the meeting documents and then reviewed the agenda; clarifying the objectives of this workshop as well as introducing the overall approach for facilitation. Mr. De Morgan reminded participants that this workshop would not adhere to a formal hearing process and as such, a meeting summary would be developed rather than an official transcript. The meeting summary will be posted on the CEC website as soon as it is available. He noted that participants must submit comments in writing after the workshop to ensure their parties' issues, concerns, and perspectives are on the record.

Misa Ward of CEC's Siting Division expressed her belief that the agenda would be a useful tool for today and future workshops and encouraged participants to provide feedback on the agenda to CEC staff. Ms. Ward informed participants they could expect a similarly formatted agenda at least one week in advance of the next staff workshop.

II. Schedule for Future Workshops and Public Participation

Ms. Ward presented an overview of the current schedule for development of the guidelines. She indicated the schedule was consistent with Mr. York's June 9, 2006 Committee Hearing presentation of the CEC schedule. She pointed out general opportunities for public involvement, while also providing more specificity regarding the dates, topics, and key issues for further discussion at upcoming workshops. She indicated CEC welcomes comments at any time throughout the process; written comments should be sent to the CEC and must include a reference to docket number 06-OII-1 and indicate "Developing Statewide Avian Guidelines" in the subject line. Please see the workshop notice for additional directions on submitting written comments.

She observed that although the overall schedule has been set by the Commission, there are a few tentatively scheduled elements and as such, participants should look to the CEC web site for updates. Ms. Ward also noted that CEC confirmed the Science Advisory Committee (SAC)

members on July 12. She added that they have already been engaged in efforts to review a draft of chapter 1 of the guidelines. Susan Sanders, CEC, and David Sterner, CDFG, are maintaining active contact with SAC and they indicated the scientific review process is going well.

Following is an outline of the proposed schedule elements:

- All Staff Workshop meetings will be held at the CEC building (1516 9th Street, Sacramento).
- August 11, 2006 – deadline for public comments in response to this workshop. While this deadline is not the last opportunity to submit comments, it provides a reasonable timeline for CEC to review and incorporate comments into the draft guidelines as appropriate.
- August 28-29, 2006 Staff Workshop 2 – Ms. Ward requested participants mark the next staff workshop on their calendars, the duration of which was extended to a two-day meeting in response to public feedback. The focus of this workshop will be on pre and post-construction monitoring.
- September 5, 2006 – the next round of public comments on Staff Workshop 2 are due.
- Late September Staff Workshop 3 – request to hold the 28th-29th for now; CEC will confirm the dates as soon as possible.
- Early October – public comments due within five working days after Staff Workshop 3 in order to give time to incorporate in draft final guide.
- Early October – public release *Draft Guidelines*.
- Mid October – public comments on *Draft Guidelines* due.
- Late October – public release of *Draft Final Guidelines*.
- Early November – Renewables Committee Hearing on *Draft Final Guidelines*.
- Early November – public comments on *Draft Final Guidelines* due; allowing more time to review due to document size.
- Mid-December – release notice and *Final Guidelines*.
- Late December/Early January – business meeting; adoption of *Final Guidelines*. The previous schedule presented mid-December for final adoption, but it is now looking like it will be pushed a little further out.

CEC anticipates providing process updates at each Staff Workshop as more specificity about the timing of draft production and release becomes available. Interactions with the SAC are not included in the schedule as they are not defined as public interactions. Ms. Ward requested that anyone with comments on the schedule submit them in writing by August 11, 2006. The schedule is available on the CEC web site (http://www.energy.ca.gov/renewables/06-OII-1).

Paul Vercruyssen of the Center for Energy Efficiency and Renewable Technologies (CEERT) indicated concern regarding the idea that CEC has already developed a draft of the first chapter as it does not enable staff to obtain stakeholder input before beginning to develop language. Ms. Ward responded that given the schedule, CEC staff intends to develop draft language quickly to allow for review by the SAC and, as quickly as possible, the public.

Mr. Vercruyssen suggested that the guidelines would be a better product if CEC began development of the language after each workshop. He indicated that this process was driven by advocates, and while CEC has been very helpful in facilitating the workshops, advocates have a lot of value to add and they do not want the draft to get too far ahead without their input. Ms. Ward affirmed that CEC will not release the guidelines without public input but given the tight schedule, added that drafting needs to begin as soon as possible. CEC plans to revise chapter 1 based on public feedback

provided at this and future workshops. The drafts are intended to provide fodder for discussion with multiple levels of review built in to the process, especially towards the end.

Peter Weiner, council for CEERT, inquired if tentative topics had been identified for Staff Workshops 2 and 3. Ms. Ward replied that CEC has tentative topics for each meeting but that further discussion was needed with Ms. Sanders to confirm details. At this time Staff Workshop 2 will cover pre and post-construction; however it is unclear what will be discussed at Staff Workshop 3. The expectation is to review the full draft guidelines but the topics may need to be broken up.

Mr. Weiner indicated he was looking for a transparent process. He suggested that many attendees have a great deal of diverse experience and perspectives and there exists a concern that CEC staff will become invested in their work product(s) and it will become harder to change language rather than easier. Mr. Weiner requested the draft guidelines be shared with the public in the early stages. Ms. Ward reiterated that the schedule was established by the Commission and once again welcomed feedback via written comments.

Julia Levin of the Audubon Society added that the schedule is too compressed, and that there are not sufficient numbers of workshops. The complexity of topics (e.g., adaptive management) engenders complicated discussions. As there is no legally-compelling deadline, Ms. Levin inquired why the process cannot be slowed down. Workshops need to be designed so as to meaningfully engage the public in order to get the content and scope of the guidelines right. Mr. York responded that the schedule was developed in close consultation with the Commissioners, and CEC staff is attempting to respond to their schedule. Written comments will be very helpful to commissioners and staff, and he asked that attendees put their concerns in writing.

Kenny Stein of FPL Energy wondered if scientists from the SAC would participate at any point in the process, and if more information regarding the SAC could be provided to stakeholders. Ms. Ward responded that SAC is not scoped to participate in workshops; their role is limited to science review rather than interface with the public. She added that CEC does not anticipate SAC members will attend future workshops, though some individuals may wish to attend. Mr. York added that SAC members' bios are posted on the CEC web site.

John White of CEERT submitted a process observation; stating it was unclear a facilitator was needed given the design of these workshops and the minimal level of meaningful public engagement. In his opinion, the process is much different than he had hoped for with staff appearing to function as stakeholders in preparing their own products. Facilitation would be more appropriate if it was used to moderate collaboration up front in designing the guidelines before they are finalized by the Commission. CEC reiterated that staff cannot change anything in this moment, but welcomes comments on this subject.

A participant suggested that CEC staff discuss their rationale for the decisions about SAC membership, clarifying in what ways staff are relying on whom for what expertise. He indicated this was an important issue, especially given the lack of public interface with the SAC. The group agreed to defer this issue until the end of the day (see Section VIII for an overview of CEC comments). The group also asked that the issue of process be revisited at the end of the day.

III. Relationship of Guidelines to CEQA, State and Federal Law

A. Presentations

Three presentations were made to set the context for the conversation about the relationship of guidelines to CEQA, state, and federal law. Brief synopses of their comments follow:

Kerry Willis, CEC Senior Staff Counsel

Ms. Willis introduced herself and acknowledged her appreciation of participants' comments on the schedule and expressed her hope individuals would send in written comments. Ms. Willis provided an overview of how the guidelines will work in relation to the California Environmental Quality Act (CEQA). Within the CEQA process, cities and counties make siting decisions, land use decisions, evaluate and disclose environmental impacts of project and implement mitigation to reduce environmental impacts. She indicated that CEC has no intention to duplicate local and state environmental laws. Although CEC has siting jurisdiction over certain energy facilities, they have no plans to do so with wind. Local governances have adopted wind resource as part of their power generation plans. CEC respects the work they are doing and is actively soliciting their input. These guidelines will be voluntary; therefore local governments need to be a part of the process in order for it to be effective. Each site-specific mitigation strategy will use science-based methodology to help establish biological significance of impacts and feasibility of mitigation for consideration by local jurisdictions. CEC welcomes public input, especially with respect to how the guidelines can be useful to lead agencies. Ms. Willis encouraged participants to contact her directly with any questions or concerns and stated CEC's interest in addressing any issues up front.

Clarification Questions/Discussion: Annie Mudge of the California Wind Energy Association (CalWEA) noted the importance of local government as the decision makers. She expressed surprise that there were not more representatives from local governments present and wondered if CEC staff conducted sufficient outreach. Ms. Willis affirmed that they had and Mr. York noted that John Mathias, CEC, in particular has done so and will continue to do so. Although staff has not seen the desired response from local governments they will continue to strive to engage them and hope for more success in the future. In closing, Ms. Willis noted participants can encourage local government participation as well.

Al Manville, U.S. Fish and Wildlife Service

Mr. Manville noted that Mike Greene was unable to attend and that he was taking Mike's place. Mr. Manville provided an overview of the federal government's responsibility for protecting avian populations as follows:

- Population status: out of 836 species of birds, more than 233 are in trouble and the USFWS lacks data on about 1/3 of the North American bird populations. This presents a significant management challenge.
- Development of USFWS Voluntary Interim Guidelines to help wind developers avoid future take of migratory birds and Federally-listed threatened and endangered species by:
    - Proper evaluation of potential sites.
    - Proper location and design of turbines and associated infrastructures.

    - Pre- and post-construction research and monitoring to identify and assess risk and potential impacts to wildlife.
- Use of USFWS guidelines:
    - Location of wind facility site is critical.
    - Ranking sites and assessing risk, pre-development – using the Potential Impact Index (PII) protocol which may be helpful to California as a tool or concept.
    - Spatial and temporal use of airspace, pre-development – need to know how birds, bats and insects (food) use airspace during the day, night, season-to-season, year-to-year and in inclement weather; useful tools, and adequate sampling to account for yearly and seasonal variability.
    - Post-construction monitoring is important because it validates or negates hypotheses, conclusions and recommendations made during risk assessment and pre-construction monitoring processes; may provide scientific data allowing mid-course corrections to fix documented problems discovered through use of deterrents, mitigation or alternate actions.
- Voluntary guidance vs. statutory regulations:
    - Creates a challenging dynamic.
    - The Migratory Bird Treaty Act allows USFWS to pursue prosecution for killing one bird, and USFWS does not issue incidental nor accidental take permits (unlike those issued under the Endangered Species Act)
    - Rare, but enforcement of MBTA can occur as in the Moon Lake Electric Cooperative Association case where a number of proven conservation measures were recommended but not used.
    - These guidelines are not intended to limit or preclude USFWS from exercising its authority under any law, statute or regulation but it is acknowledged that some birds may be killed at wind turbines even if all reasonable measures to avoid take are implemented.
    - Working with industry to proactively seek ways to avoid impact on birds, and will use enforcement and prosecutorial discretion, especially with those within the industry who have made good faith efforts to avoid take of migratory birds.
- Next Steps for Guidance
    - USFWS currently working with DOI Solicitors, General Law, Office of Dispute Resolution and USFWS Directorate to determine most appropriate course of action to meet intent of discussion group, spirit and intent of FACA and Administrative Procedures Act. The hope is to soon finalize recommendations on how to proceed but for now interim guidelines remain in place. USFWS recommends its continued use until an updated version is made publicly available.

Mr. Manville concluded by stating the overall goals of the guidelines are to help wind developers avoid take and minimize impacts to wildlife habitat by properly evaluating sites, locating and designing turbines and infrastructure, and conducting pre- and post-construction monitoring.

Clarification Questions/Discussion: Carl Zichella of the Sierra Club pointed out that no mention was made of a track record regarding compliance with USFWS guidelines and wondered if they were actually being used. Mr. Manville replied that while some consultants have been using them, industry is not pleased with guidelines, and the conservation community and some state governments want to see the guidelines become regulation. Given the voluntary nature of the guidelines, Mr. Zichella asked what USFWS plans to do if guidelines are ignored. Mr. Manville responded that known

mitigation measures are advised, and if they are blatantly disregarded it could lead to criminal prosecution. In general, conservation measures for wind development have not been locked in therefore USFWS currently considers a range of options.

Scott Flint, California Department of Fish and Game

Mr. Flint thanked CEC staff for all their hard work in coordinating this effort and expressed CDFG's enthusiasm for participating fully in the process. He stated that his presentation would focus on topics unique to California; including issues encountered in how wind energy projects relate to CDFG code and wildlife resource trust responsibilities, and how CDFG perceives guidelines as a process to help deal with potential conflicts under those laws. He noted that CDFG appreciates the benefits of wind power as a green energy.

One of the primary tools to understand and address impacts to wildlife is CEQA. Building upon the role of lead agencies as presented by Ms. Willis, CDFG also has a role in the process as a trustee agency for fish and wildlife concerns, and has a mandate to reduce project impact to 'less than significant' and to maximize environmental protection as much as possible. Mr. Flint stated he was not sure of the numbers of listed species under the state Endangered Species Act (ESA), but explained there are other areas in state code which may have more impact than ESA. CDFG code lists 13 bird species as fully protected; no take is allowed, there is no flexibility and there is no process to issue take permits. Five of these species are currently impacted by some wind facilities, and this is an area of concern CDFG wants to address.

CDFG is working cooperatively with USFWS (as the lead) to ensure compliance with MBTA. The state ESA lists a few migratory birds (e.g., Swainson's hawk) that may be impacted and this has raised serious concerns. Some raptor species (falconidae or strigiformes groups) are fully protected, some are not, but CDFG wants to address all concerns. Code allows CDFG to issue take permits, but does not allow the option for those not currently listed. The question remains of how to use the guidelines to meet mandates using a scientifically–based framework to address the CEQA process as this is the primary role CDFG sees the guidelines playing. The guidelines could also help support CDFG's trustee role via technical guidelines regarding site-specific collection of data for siting impact analysis and guidance/recommendations for mitigation strategies. Additionally, science-based methodologies and protocols help lead agencies institute monitoring programs to assess the effectiveness of measures taken, inform adaptive management, and perform follow-up mitigation monitoring.

Mr. Flint noted that as more wind facilities are developed, more species may be listed under California's ESA. The guidelines may help inform the development of permitting incidental take. CDFG wants to work cooperatively with all players to achieve and maximize reductions in impacts form projects and is committed to an open and transparent process. While CDFG does not have all the answers, he concluded, they will participate in efforts to answer the difficult questions.

At this time there were no further clarification questions and the group's attention was turned to the following guided discussion.

B. Discussion

Topic: *How these guidelines will relate to wind turbine-related fatalities of protected birds and bats, and how they will be compatible with state and federal wildlife protection laws.*

Question: *How should California guidelines be used by lead agencies? For example, should they be provided to wind developer applicants at the beginning of the application process, used to evaluate environmental documents, or incorporated into general plans or zoning ordinances?*

Ms. Levin initiated the discussions by expressing support for the voluntary guidelines; the main purpose of which should be to increase lead agencies' understanding of tools they can use to mitigate impacts. Audubon would like to see the guidelines clearly spell out how lead agencies can comply with state and Federal laws and hopes to see them achieve a legal standard which is not enforceable but which reflects what state and federal laws would require. Audubon hopes USFWS and CDFG are including council as well as scientists to clearly explain what compliance means in terms of wind power and wildlife.

Mr. Weiner expressed a different view in that CEERT agrees the guidelines should be voluntary but all information developed needs to be considered by the county as they move forward, just as the county must consider all readily-available information throughout the CEQA process. This establishes a factual compulsion rather than a legal compulsion; if the science is good it must be considered for CEQA purposes. He add that the guidelines cannot be one-size-fits-all, as CEC has observed there is a need to consider various factors to determine how much needs to be done on a site-specific basis. Eventually, the most important things will be noted under CEQA, and grounds of what is significant need to be established. What is legal and what is significant may be different. Also feasibility must be determined based partly on biology and partly on the economics of pre- and post-construction monitoring. Guidelines can help define significance and feasibility. As flexibility regarding compliance with federal and state laws cannot be addressed via the guidelines, it should acknowledge the potential interactions rather than attempt to inform compliance.

Mark Sinclair of Clean Energy States Alliance stated the role of the guidelines should not be to recommend an approach but to provide thoughts regarding ways to address challenges. While some approaches may be innovative and/or provocative, Mr. Sinclair hopes they will be considered before pursuing traditional approaches. He expressed the caveat that he is not an expert on California law, but requested that since counties and cities are lead agencies, consideration be given to CEC and/or CDFG assuming primary authority on wildlife-related effects rather than defer to local governments. Instead of focusing on a full spectrum of siting issues, focus on particular wildlife issues since most states and local offices do not have the resources/expertise to address wildlife impacts. Most states have primary wildlife trust responsibility, therefore it seems fitting that guidelines be designed to grant state agencies primary responsibility to protect wildlife resources. Mr. Sinclair proposed that authority exists to exercise primary jurisdiction and would not be a huge imposition to local governments' authority. There are a range of mechanisms the guidelines could harness such as centralized state permitting process where the state issues the permits and the guidelines inform the permitting process. Or developers could indicate they will use voluntary guidelines to result in a safe harbor agreement immune from enforcement unless unexpected fatalities occur. Additionally, CEC and/or CDFG could be bound under CEQA to ensure that a wind project would not interfere with existing ESA legislation by following the guidelines and designing proposed operations in a manner that will likely be consistent with existing wildlife laws to provide some certainty and predictability.

Mr. Sinclair suggested that whatever happens, it is important to design the guidelines to be compatible with state and federal laws to protect wildlife; requesting review by the state attorney's office and USFWS council to ensure consistency and that guidelines are rigorous enough to create safe harbor. It may be helpful to create a memorandum of understanding (MOU) with USFWS to make them comfortable with the process (e.g., state of Washington MOU). Guidelines should be drafted to ensure they address requirements for non-listed birds and bats as well as those with protection under ESA, with protocols being consistent with both types of wildlife laws. He also proposed the use of Best Management Practices (BMPs) to allow developers to choose from a smorgasbord of approaches rather than a one-size-fits-all approach such as used in the state of Vermont, maintaining flexibility for developers and state and local partnerships to design study plans that fit each individual context. Mr. Sinclair also supported the inclusion of adaptive management and good monitoring protocols while allowing enough flexibility that it will not hold up alternative technologies in moving forward.

Mr. Zichella posited that it is unlikely there is a way to ensure those who observe the voluntary guideline will not be penalized by those who do not use them. He suggested that those who ignore the guidelines be notified that such a lack of action could result in an enforcement action, referencing the example of a transmission line entity (co-op) which was notified of USFWS guidelines and encouraged to use them; when they did not use them they were prosecuted. He noted the importance of targeting enforcement resources suggested these guidelines be similarly based on good science to be effective and streamlined, ensuring use by as many players as possible.

Ms. Mudge offered that the guidelines could be useful as information gathering guidance, as opposed to compliance, to help local governments standardize methodologies and protocols to comply with CEQA and wildlife laws. She added it would be helpful to see proposed methodology baseline surveys (pre-construction) and monitoring (post-construction) geared to each site. The guidelines should not repeat existing laws (CEQA, MBTA, etc.) but should help gather information to make determinations of compliance.

Andy Linehan of PPM Energy suggested the guidelines lay out pre-construction work and information needs to be included in pre-project/construction documentation useful to the CEQA process. If guidelines are followed in preparing CEQA review documents, the CDFG and Counties would consider it adequate information for CEQA; providing certainty to developers in the early stages but not necessarily preventing lawsuits. The guidelines need to be site-specific and focused on wind-related impacts to species.

Kim Delfino of Defenders of Wildlife suggested that the guidelines not minimize the importance of CDFG codes and requirements, but rather provide an opportunity to look at ways to avoid impacts, not just reduce significance of impacts. Since CDFG and USFWS have enforcement capability, the guidelines should be used to inform how to fully enforce. If wind energy companies voluntarily use the guidelines, it should be considered that they are doing their best to comply with existing codes.

Mr. Vercruyssen added that it is unlikely these guidelines can solve all the issues that exist around wind-wildlife interactions, which is part of the reason that the process and relationship building is so important to the creation of the guidelines.

Ms. Levin proposed the guidelines would be most useful as a roadmap for industry and permitting agencies, where some companies will have to do more, some less. As a general guideline/roadmap it will be essential to clarify where the guidelines are prompted by CEQA requirements and where they are prompted by wildlife requirements. We should not view their intent as merely to satisfy CEQA because wildlife laws are the driver behind CEQA. Prosecutorial discretion will inform future situations, and it will be important to include National Environmental Policy Act (NEPA), CEQA, wildlife laws, and other laws not already noted here.

Mr. Weiner agreed with Ms. Levin's remark of the guidelines being used as a roadmap under which agencies look at compliance via prosecutorial discretion. Agencies have been proactive to engage those with conscious indifference to compliance with laws; Moon Lake exemplifies this. Whatever the guidelines are, if they are well-developed lead agencies must use them as CEQA requires the consideration of all available data, the more compelling they are, the more they will be used to great effect.

Dick Anderson requested Ms. Levin further explain the concept of using guidelines as a roadmap. Ms. Levin replied that they could be a tool for wind developers and counties which details the state's expectations for satisfying CEQA and other laws to address all major categories of environmental impacts. If guidelines are not enough to satisfy laws, what is the point? If counties, cities, and developers follow the guidelines it should be understand they have done their job. Granted, there will likely be exceptions, but it is meant to satisfy most cases.

Participants resumed discussion about the overall process design for public involvement in the drafting of the guidelines, clarifying that the concern is not limited to timing of the schedule, but includes process design as well. It was noted that participants understood the time constraints placed on CEC staff, and that the focus of discussions should consider how to use the limited time effectively. Mr. York responded that given the current schedule staff will work on developing the guidelines as stated if/until the course is altered by the Commission. Mr. York also reaffirmed that CEC has tried to create a schedule and process for public involvement that will work. Participants were encouraged to submit their comments in writing. Ms. Levin proposed that a range of stakeholders jointly develop a letter describing their concerns and suggestions and requested that CEC staff inform the Commissioners of the incoming comments. Ms. Ward replied that staff would do so during an upcoming scheduled meeting.

IV. Determining Pre-Construction Study Needs

- *What sort of ranking procedure, if any, should be used to determine duration and intensity of pre-construction studies?*
  - *What constitutes a "very sensitive site" in California? (e.g., possible presence of special status species, important migratory corridors, raptor concentrations?)*
  - *What level of effort is required to determine if a site is "very sensitive"? Is a reconnaissance survey and desk-based information gathering sufficient, or is additional fieldwork required to make that determination?*
  - *Does a "very sensitive site" warrant two or more years of baseline pre-construction information gathering?*
  - *In what circumstances are nocturnal surveys for bats and migrating songbirds warranted?*

Ms. Sanders began the session by mentioning that with respect to pre-construction study needs, Canada uses a ranking system which appears to be a good idea. The questions of what makes a site

sensitive, how to make a determination, and how much study is required could be addressed in the guidelines. Some of these questions can be framed by Canada's example; more information is available on the CEC website. She requested participants inform staff of additional ideas and/or existing references. Ms. Sanders posited that pre-construction monitoring is crucial because it sets the stage for post-construction monitoring and influences the permitting process.

Mr. Stein initiated discussions by stating that in some cases there may be enough existing information available so that pre-construction survey data may not be necessary. He suggested it is important to consider this concept, but observed that USFWS guidelines do not mention this idea. If it is a well-studied site, and it is deemed 'sensitive', there will likely already be adequate studies done.

Mr. Zichella countered that secondary research does not always help get at the significance of site impacts; such as with the Tehachapi Project where lots of money and resources were invested to determine significance of impacts. It is important to avoid undermining an effort like this just because one entity does not want to do it. Older studies have been shown to be incomplete or outdated. We must consider how recently studies were conducted, and determine what type and for what purpose. It may be helpful to develop criteria to ensure comparisons of apples to apples.

Mr. Stein argued that if a site was similar to Tehachapi and good studies were done, and an adjacent add-on site was proposed 2-years of study might not be needed. Mr. Zichella agreed that this example makes a case for the need for flexibility, but that the determination depends on how recent studies were and what was done. He added that studies conducted in the past may have been good in the past, but may not retain the rigor in the present. Antelope Valley has done great job assessing previous studies; it is worth the investment to have a level of rigor standardized.

Mr. Sinclair addressed the concept of a level of concern matrix and how effective it can be. The Canadian system uses this approach to determine baseline questions and intensity of analyses. He inquired what is known about the Canadian experience with this kind of matrix and sensitivity analysis. Does it lead to more resource efficient studies, or is it too simple of an approach? Mr. Sinclair believes it may promise more than it delivers but would like to see an evaluation of their approach. It may make sense for sensitivity analyses being done for species at risk but it requires more priority for up-front analyses. He suggested that the matrix should not be limited to baseline analysis, but should also assist in understanding the effects of siting mitigation and operational changes. He expressed concern about screening many different sites against a theoretical, perfect site and stated this would be the wrong use of a matrix. In the East and possibly in California, limited sites are available for wind; therefore we cannot expect them to be perfect on all grounds. Sites should not be compared and ruled then out solely on risk to wildlife as it creates too onerous a burden on developers. Mr. Sinclair commented the guidelines should be used by developers to understand the sensitivity of a site and decide if they want to go forward. Developers should not be required to consider four to five sites and choose the one with the least degree of sensitivity. They should be used as one tool of many to evaluate whether a developer can make macro and/or micro site adjustment as well as for agencies to determine how much resources to invest in a site.

Mr. Stein added that the Potential Impact Index (PII) of the USFWS interim guidelines is a good idea but its primary use is to help developers select a site from among a group of sites. In reality this approach is not practical, as there are so many more factors at play in site selection. PII provides one filter; Mr. Stein welcomes the opportunity to work with members of this group and SAC to lay out

additional filters as the guidelines are developed. Birds and bats may be included in the filter of site selection, but they are just one consideration of many.

Mr. Vercruyssen noted that CEC's Public Interest Energy Research Program (PIER) has funds available to assist this process. Mr. Linehan suggested PIER funds could be used to help answer the question of whether existing information is adequate to reach definitive conclusions about proposed wind project sites. For example, do we know enough about avian mortality in existing wind resource areas, such as San Gorgonio, that new projects will not require new information unless they have special or distinct environmental aspects.

Mr. De Morgan summarized discussions by stating it appears most agree a ranking system is a good idea and suggested the group move on to the next topic regarding what constitutes a sensitive site in California and what level of effort is required to determine if a site is "very sensitive."

Garry George of the Los Angeles Audubon Society noted that studies previously conducted have excluded migratory songbirds and emphasized the need for more studies on migratory songbird populations. Mr. Vercruyssen proposed the use of PIER funds to resolve outstanding issues without redoing studies. If questions about migratory songbirds at one site are resolved, Ms. Sanders wondered how the data could be extrapolated if at all to other sites. Mr. Zichella added that changes may be occurring in migration patterns (where and when they occur) due to climate change, negating past study results.

Mr. Stein commented that when he read the Canadian guidelines and looked at the matrix he liked the idea of ranking based on sensitivity, but believes that agencies making decisions would not find it helpful. He asked, whether high sensitivity, however it is defined, would always translate into longer studies? Or are there other factors to incorporate?

Ms. Levin suggested that sensitivity and ranking are important to mitigation, but was not sure they would be helpful to determining what level and type of study to use. Studies should be based on what is already known and maybe to identify minor gaps in past studies to be filled. Ms. Sanders noted that studies should not only consider species that are present but seasonal variations as well.

Mr. George informed the group that only one nocturnal study has been conducted in California. This amount of data is inadequate and more data would be required for analysis. The whole state of California is a migratory pathway, and we need to know where birds go when they come down to lower elevations. San Gorgonio studies found birds were most vulnerable at 200-300 meters, this finding begs for more study. It was noted the studies Dick Anderson conducted in Tehachapi did not include nocturnal work, as it is much more complicated than surveying during the day.

Mr. Linehan expressed the hope that while all topics related to avian impacts need to be studied, the type and quality of existing data needs to be evaluated first. For example, if post-construction avian mortality monitoring indicates that passerine mortality is not elevated and/or if there is evidence that passerines are not present in large numbers, then extensive pre-project studies of passerine migration should not be needed. Similarly, with respect to bat mortality, it should be determined (from review of post-construction mortality monitoring results if bat mortality is even an issue at California wind sites); pursuing additional studies if and only if it is a problem.

Mr. Stein suggested the determination of whether or not to pursue nighttime studies factor in results of post-construction mortality data regarding what is dying and how many. He questioned the need to pursue full on pre-construction nighttime surveys if post-construction mortality data exists. Nighttime radar studies have been done elsewhere in the country and a report exists looking at trends of such studies.

Mr. Zichella noted that radar data from Edwards Air Force Base exists and wondered if there are any other studies to look at. Tehachapi had extensive data and may provide a good way to determine if more studies are necessary. Mr. Zichella expressed concern about using mortality as an indicator to conduct more studies, and stated he would rather mortality be avoided rather than mitigate problems.

A participant suggested that the "poof principle," as presented by Pete Bloom at the January 2006 AWEA/Audubon workshop, confounds results explaining what happens to songbirds when they get near turbines. We do not know what happens, how many are affected as we cannot accurately extrapolate from mortalities counted, nor do we know if shifts in migratory routes occur due to location of turbines.

Ms. Levin reminded the group that CEQA says it is not okay to construct a facility, and then determine if there is a problem. More information is critical from all standpoints; if the state can invest resources heavily upfront it will help the process of ranking. In the meantime, establishing a multi-step process if industry is interested in site, where an initial assessment of presence of sensitive species is conducted. If a great impact is identified it will it affect determination of sensitivity which would inform the kinds of and amounts of studies to do.

V. Post-Construction Monitoring

- *Should California guidelines include recommendations for minimum/maximum number of years for conducting post-construction studies?*
  - *What factors should determine the range of years that might be appropriate to recommend for post-construction monitoring?*
  - *Should post-construction monitoring data be publicly available?*

Ms. Sanders informed participants that the only information available to help inform post-construction monitoring study requirements come from Vermont guidelines which suggest three years of post-construction studies, and an example from Scotland detailing a range of studies at specific intervals. Given the dearth of examples on this topic, any thoughts about duration and intensity of post-construction monitoring will be very helpful.

Mr. George indicated he had never seen a post-construction monitoring study; noting that a study was conducted at San Gorgonio but was not published. It is his belief that this data is traditionally not accessible by the public and he wondered if the guidelines could address this limitation. Mr. Linehan noted that his company's policy is to share post-construction monitoring data with the agencies and public, and quite a few other companies have similar policies. It was noted that examples from the Northwest are available; specific examples of California projects are High Winds Project and Shiloh Wind Project. Ms. Sanders agreed to post such examples on the CEC web site for participants' information.

Mr. Weiner asserted that this data should be public and added that hard data should be available, rather than just interpretations of the data. He indicated he wanted the guidelines to encourage making data available and transparent (e.g., collection protocols etc).

Ms. Delfino added that in addition to transparency there is a need for transferability. Regarding post-construction monitoring, the guidelines provide an opportunity to standardize protocols; asking the same questions and gathering data in a similar manner. This approach could be useful in analyzing cumulative impacts and comparing different sites/projects. She suggested data should be publicly available so researchers can continue to do scientific assessment after studies are completed. Guidelines could, she proposed, detail wind energy companies' responsibilities for post-construction monitoring for any number of years, and allow for researchers to go into study areas and continue studies if desired/needed to pursue longer-term monitoring.

Mr. Stein brought up the topic of the timing and duration of post-construction monitoring; cautioning against a one-size-fits-all approach. If the main purpose is to understand impacts and mitigation, he can envision one to two years of monitoring to identify generally what the impacts are and what to do to mitigate impacts. Another year of monitoring may refine numbers but would not necessarily affect mitigation strategy; therefore he wondered whether another year is really useful.

Ms. Levin agreed with Mr. Stein with one caveat; since post-construction monitoring is not a huge burden (i.e., it does not need to be a big expense that slows the process down) she cautioned against saying it does not need to be done. If there are few or no sensitive species present at a site there is not a need for a whole lot, whereas other sites with high numbers of sensitive species present may require new technology and/or designs to mitigate. She proposed that all sites should have longer-term yet infrequent monitoring. She noted that migration patterns are shifting due to global climate change and proposed that some level of monitoring continue for an extended period of time to enable changes from climatic shifts to be observed.

Mr. Stein suggested the guidelines need to consider the financial viability of projects. Minimal studies can have a great impact on a small project due to the built in rate of return. The concept of conducting monitoring for an extended period of time may affect the financial viability of projects, and while the information may be helpful it is not certain if all projects can afford to do so long-term. In response, Ms. Levin suggested the magnitude of monitoring could be linked to the size of project. Mr. Stein replied that for projects with varying production capabilities (150MW vs. 10MW) it could cost the same amount of money to conduct such studies. Given that most other industries conduct on-going monitoring, Ms. Levin responded that it does not appear to be asking the wind industry to attain higher standards than other industries. If a subsidy has to be built in to the process it should be done as it is the cost of doing business.

Mr. Zichella commented that climate change monitoring has to be done on a long-term scale. While we are seeing evidence of change now, it took a long time to develop conclusions. He suggested looking at other sources of money to explore long-term changes due to climatic shifts, possibly using radar and Doppler technologies too. These studies must be done regardless; since they could impact wind projects they should be explored.

Mr. Weiner agreed that exploring climate change issues is for the collective good and that government involvement in this issue is very important as migratory impacts are likely to occur on a

large scale rather than project-by-project. He noted he is currently involved in a (soil/water contamination) project that requires monitoring in perpetuity where the present value does not go down to zero. PIER funding is a great idea to support such an effort, but without financial support it can be a real mess.

Ms. Mudge countered that it is not fair to say that all industrial projects have long-term monitoring, as some have none. Even those that do have impacts to birds and wildlife (e.g., skyscrapers, housing developments etc.) do not conduct long-term monitoring. The financial repercussions of this kind of requirement are huge. Post-construction monitoring should be reasonable and feasible. There is a desire to have good data on impact issues to move forward, but industry wants to focus on data that helps prioritize impacts. When spending dollars on studies, the focus should be on where data describes incidences of high mortality. To her knowledge, Ms. Mudge believes that high mortality occurs with raptors not migrating songbirds.

Mr. Vercruyssen noted it appeared as if post-construction monitoring was being discussed in two different applications: direct mitigation and long-term assessment of cumulative impacts and population affects. Ms. Levin proposed that perhaps the real value of an extended time horizon for studies lies in access. Maybe individual companies will not need to conduct monitoring forever but access to the sites should be provided so someone else can conduct additional and/or new studies if needed.

Brenda LeMay of Horizon Wind Energy stated that if the expectation is for perfect information, the wind industry should not have to bear that burden in entirety. She questioned if we know enough about the relationship between pre- and post-construction mortality; if and when we do, the analysis should become straight-forward. Where migrating birds fly is a bigger issue that may or may not apply just to wind industry; the world may want to tackle that issue.

VI. Post-Construction Management

- *What process should California guidelines recommend for reviewing monitoring data and making post-construction management decisions?*
  - *Are there models of successful use of adaptive management on wind energy projects?*
  - *Is formation of a Technical Advisory Committee a useful approach to assist in post-construction management decisions?*

Ms. Sanders provided opening comments; stating that the adaptive management decision-making process was devised in the 1970s and establishes a cyclical procedure to set management objectives, identify options, decide which option is best, monitor, and circle back to assess how well things are working. CEC would appreciate hearing participants' thoughts on 1) what to do with monitoring data after is has been collected and 2) after a project is permitted, how do you make changes? Ms. Barnes inquired if there are any good examples of adaptive management for wind, and if so, where it has worked well.

Mr. Vercruyssen observed the importance of having local permitting agencies involved in this conversation as they will make actual decisions. Mr. York stated CEC expects to do more outreach to counties and others and recognizes the importance of the comment. Mr. Vercruyssen offered CEERT's assistance in engaging local permitting agencies in future workshops.

Ms. Levin proposed locating future workshops in Solano County or around the Bay Area to make it easier for local agencies to participate. She expressed uncertainty that any good models of wind-centric adaptive management exist and it is likely something new will be created. It is her hope that the discussions will not be limited to defining a process for adaptive management; there is a need to discuss tools, reasonable goals and triggers. The reality is a fixed structure limits options for adaptive management. Ms. Levin encouraged CEC to schedule at least one full day workshop, if not more, at various locations around the state.

With respect to substantive topics for discussion at future workshops, Ms. Levin listed the following:

- What implementing entity is in charge of adaptive management? It cannot be only the counties as they do not have the expertise and resources.
- Who pays for, and who oversees, adaptive management?
- What are tools for adaptive management related to wind?
- On-site vs. off-site adaptive management – if birds hit turbines, off-site mitigation does not change mortality.
- What are appropriate determining ratios?

Mr. Weiner reiterated the need for scientifically-proven and transferable mechanisms that address impacts to birds. There is a need to be thoughtful and creative in developing an adaptive management process; it is not clear that the guidelines are the place to do it. There is a need for some certainty at the outset when planning to invest and so it is important to consider how to put boundaries on what is meant by adaptive management.

Ms. Delfino mentioned she did not know of examples of adaptive management in the wind arena but there are plenty of examples out there in other contexts. Adaptive management itself is not that difficult, the significant questions are what you are managing towards and what the goals are. Wildlife agencies should be integrated throughout the adaptive management process; specifically with respect to threshold of loss issues. Ms. Delfino thought it would be useful for the SAC members to share perspectives on this topic.

Ms. Mudge noted that adaptive management measures would be appropriate if there is a determination of a significant impact which you want to reduce to a level of less-than-significant. The majority of existing projects have not demonstrated significant impacts.

Regarding the specific question on formation of a Technical Advisory Committee (TAC), Ms. Delfino stated it is a good suggestion given the lack of existing research and information available. Once a wind farm is up and running, what do you do if an impact occurs? How would repowering work if applicable? TAC could help ask questions, direct research, and inform an iterative process on a project-by-project level for guidelines and/or on a state-wide level to consider the big picture.

Mr. Vercruyssen added that when you start talking about adaptive management processes, you move into un-chartered waters. TAC could be helpful in vetting what kinds of research would be useful. He suggested that guidelines for engaging TAC on a site-by-site basis could get very complicated and should be avoided for the moment.

Ms. Levin noted guidance from TAC would be helpful on a very general level. She expressed uncertainty about how significance relates to adaptive management, and disagreement that significance alone informs adaptive management efforts. Initial findings may be off, things may change and significance may change, possibly due to cumulative impacts. Ms. Mudge reaffirmed her point that adaptive management is a mitigation measure and should be informed by findings of substantial impact.

Mr. Stein added that when thinking about the concept of adaptive management consideration must be given to whether or not industry can put a cost to it. If the cost of adaptive management is open-ended and without bounds, it becomes a challenge to determine the rate of return for a project.

VII. Mitigation

- *What mitigation options should California guidelines include (e.g., operations and lighting modifications, habitat modifications, habitat acquisition and/or conservation easements)?*

Ms. Sanders noted that since the group had already started this discussion on a general level it would be helpful to focus on specific examples of mitigation, such as whether or not to include conservation easements, suggestions for avoidance, and what to do after impacts are identified. Mr. York added that the current expectation for the mitigation portion of the guidelines is it will likely be the least detailed and open-ended, without hard and fast determinations.

Ms. Levin replied she would not oppose the less detailed approach, but noted if CEC is going to postpone making recommendations in this area, it puts a premium on avoidance and pre-construction research as mitigation. Ms. Delfino expressed her agreement that an emphasis should be placed on avoidance. More thought should be invested in considering conservation easements and land acquisitions as mitigation. The footprint of a project is an issue as is how to mitigate for it. If mitigation focuses on how to buy land to mitigate bird mortality, we will have failed.

Mr. Stein observed that CDFG often states it has to be land/habitat acreage as mitigation. While this may be an option, Mr. Stein is hopeful that other options can be developed. Perhaps funding a study could be an option for mitigation as an alternative to habitat/acreage for compensation. He clarified that a calculation of rotor-swept areas is used to quantify a commensurate area of habitat. This approach raises questions of whether or not it is effective and if you can actually find a commensurate parcel. Could money be spent in a better way to answer questions such as putting money in a research bank instead?

Ms. Levin proposed there is a need for better maps for birds, and would prefer industry invest money in gathering data and providing tools to use raw data.

Mr. Vercruyssen added it is hard to spend money on mitigation when it is uncertain how useful it will be. Information gaps currently exist and they need to be addressed. The idea of mitigation as an investment in determining what mitigation works or is effective is appealing. It is possible a partnership between government and public interest groups could be forged to leverage resources in collaboration.

Mr. Sterner stated that while he is not representing CDFG for its policy, he believes CDFG states research cannot be counted as mitigation. Mr. Flint acknowledged this is something that needs to be addressed as no one has all the answers and research has to be a part of the solution. Under CEQA, research is generally not considered a valid mitigation measure. This does not mean that experimental mitigation could not be established with research conducted to evaluate it. Mr. Flint reiterated that he is not saying CDFG is not willing to deal with this; it is just not a typical approach.

Jim Walker of enXco proposed the group consider not including a mitigation section in the guidelines. A pre-construction survey's value is readily evident upon surface examination, and there is a need to look at the lowest common denominators: pre- and post-construction monitoring. It is amazing how little consensus exists for mitigation, and it may not be possible to sufficiently address it over the next four to five months. The goal of 20% increase in wind power generation (340K MW) set by the President will require greater interaction between all parties. The National Wind Coordinating Committee is starting to engage in conversations focused on how to achieve this goal. There is an unbelievable deficit of funds for research, which may be attributed to the relative minimal magnitude of impacts from wind as compared to other industries. Mr. Walker suggested CEC should invest their resources in research given the extent of funding available.

Building upon this suggestion, Mr. Vercruyssen proposed that if CEC does not invest in research, perhaps it could pay into a fund that would explore mitigation strategies. If this effort was conducted in an organized fashion with clear research goals, it could be effective. There is no interest in running a struggling industry into the ground or in establishing inappropriate mitigation protocols in the guidelines when uncertainty regarding effectiveness remains. Mr. Vercruyssen noted that a recent editorial by John White of CEERT was devoted to this subject.

Mr. Weiner added that contributions to a mitigation fund are not necessarily the same as research. Other funds in existence are often considered mitigation. The larger goals of CDFG may fit well with this approach; looking at species from a broader perspective to select mitigation strategies. This approach may provide more certainty regarding mitigation, and CEC could possibly combine its funds with PIER funds.

Mr. Flint cautioned against an emphasis on compensatory mitigation (conservation easements) as a priority, but suggested a focus on avoidance and minimization and possibly experimental mitigation as well. Pre-siting surveys are used to make determinations regarding the significance of impacts if forced into a CESA permitting situation.

Ms. Levin agreed mitigation should be addressed generally but added that a summary of this discussion should be included in the guidelines for the counties. The Audubon Society would accept pursuing applied research and experimental mitigation and monitoring; although it is complicated it is a preferable approach. Ms. Sanders noted that this approach cannot be taken for every project. Ms. Levin replied that the guidelines could include a list of prioritized mitigation strategies, and clarify that experimental mitigation is preferable to items such as conservation easements. The guidelines must establish a connection so that counties can make the case for mitigation strategies selected. She added that research is not currently part of the guidelines. Mr. York responded that research is occurring right now related to wind, the results of which may be available by fall to help in developing protocols. CEC expects to use this information if applicable.

Mr. White noted that the Commission has discussed having prospective work done in areas known to be subject to development and those known to have insufficient data (e.g., Tehachapi). PIER could set aside a portion of its funding for baseline studies and monitoring. Developers are hard pressed, especially in a competitive situation, to reveal what they know about a site. It would be useful to focus on research rather than argue about what they were going to do to mitigate. Federal agencies do not have sufficient funding to do the work, so it would be best to be proactive rather than waiting for projects to come in then conduct an assessment one at a time.

Mr. Weiner clarified that the stakeholders who initiated this process did not include a chapter for research in the guidelines. There was common agreement that it was uncertain if guidelines about mitigation could be written, but he noted stakeholders are now suggesting they want more input into the peer-review process in establishing research components and on what they think would be useful for moving forward.

Mr. White mentioned that Senator Perata is working on SB 1250, which could relate to the future of the PIER program, is coming up for reauthorization. He suggested it might be helpful to reference environmental population studies as an encouraged item for PIER fund expenditures. The level of projected renewable growth will potentially have great impacts, and baseline data would be so valuable in assisting future assessments of sites. Mr. Sterner added that in 2001/2002 PIER did speak with many people in the wind industry and representatives from various positions to help inform research needs.

VIII. Other Issues

Mr. De Morgan expressed his appreciation for the great range of issues identified and discussed throughout the day. He directed the group's attention back to the bin list and asked CEC for their thoughts regarding the SAC membership. Ms. Sanders stated that SAC functions as a resource for the CEC staff writing the guidelines; adding value from their individual areas of expertise (i.e., raptors, bats, technical, quantitative bio statistics, left-brained biologist, and migratory expert). The members were specifically chosen for their expertise in key areas that are summarized in the biographies which accompanied the SAC announcement notice (on-line).

She indicated they have been very helpful and their expertise has been useful on language drafted so far. CEC knew it would be difficult to engage experts all stakeholders will like, but CEC spent a lot of time trying to get it right and stakeholders' suggestions were very helpful to the selection process.

Mr. York thanked all participants for their comments on the process. He acknowledged that there is lot of work to accomplish and expressed his interest in allowing sufficient time to cover all topics. He encouraged participants to provide written comments and to do so as soon as possible. Until any changes are made, commission staff intends to work within the existing schedule. He also acknowledged that participants had indicated they may contact Commissioners Geezman and Pfannenstiel directly. He reiterated that CEC staff will alert the commissioners about the concerns regarding the schedule.

Mr. Vercruyssen added that it is not just the schedule, but also the way the process is being run. For example, the workshop agenda distributed today is very different from the initial announcement and prevented participants from being fully prepared for today's discussions. This aspect does not convey an open and transparent process, particularly in regard to the way stakeholders and staff are

interacting. Mr. Vercruyssen commented that he would like to be involved in development of the agenda if possible, as he wants to be offering input at every stage of process. He suggested CEC staff take advantage of stakeholders as a resource.

Ms. Levin noted that an unusual dynamic was witnessed today with common interests and goals expressed by all. The workshops have potential to add value in addition to producing guidelines by identifying new issues and new solutions. She mentioned she was troubled SAC is on separate track than the public, as with this process, she indicated the SAC and the public could benefit from interactions.

IX. Next Steps

CEC staff outlined the following next steps:

- Interested stakeholders and other members of the public are encouraged to submit written comments as soon as possible;
- A written summary of this workshop will be available as soon as possible;
- Staff will share the summary with SAC to help with their review process;
- Staff Workshop #2 is scheduled for August 28-29, 2006; and
- Please see the CEC website for notices and materials pertaining to the next workshop.

In closing, Ms. Mudge requested that draft guideline language be shared with the public, even if only a table of contents. Ms. Ward replied that the table of contents is posted on the web and was distributed at the last meeting. At this time staff is trying to flesh out more details, but nothing more detailed than what is posted on the web is currently available.

Mr. De Morgan thanked everyone for their participation and efforts and stated that the meeting was adjourned.

July 28th California Energy Commission Avian Guidelines Workshop Attendees

Dick	Anderson	Science Advisory Committee
Jennifer	Bies	RESOLVE
Robert	Boyd	GE Energy
Paul	De Morgan	RESOLVE
Mark	Dedon	Pacific Gas & Electric
Kim	Delfino	Defenders of Wildlife
Chris	Dugan	
Scott	Flint	California Department of Fish and Game
Garry	George	LA Audubon Society
Brenda	LeMay	Horizon Wind Energy
Julia	Levin	Audubon Society
Andy	Linehan	PPM Energy
Vanessa	Loverti	TRC Essex
Al	Manville	U.S. Fish and Wildlife Service
John	Mathias	California Energy Commission
Annie	Mudge	CalWEA
Cliff	Murley	Sacramento Municipal Utility District
Susan	Sanders	California Energy Commission
Mark	Sinclair	Clean Energy States Alliance
Kenny	Stein	FPL Energy
Dave	Sterner	California Department of Fish and Game
Christine	Stora	URS
Paul	Vercruyssen	Center for Energy Efficiency and Renewable Technologies
Jim	Walker	enXco
Misa	Ward	California Energy Commission
Kate	Wattson	Horizon Wind Energy
Peter	Weiner	PHJW (Council for CEERT)
V. John	White	Center for Energy Efficiency and Renewable Technologies
Tom	White	enXco
Kerry	Willis	California Energy Commission
Rick	York	California Energy Commission
Carl	Zichella	Sierra Club